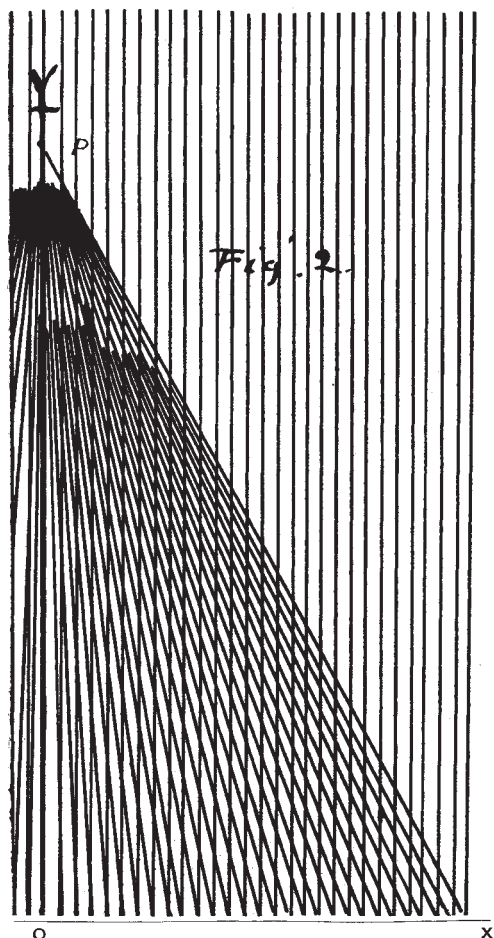


In Fig. 2 the first two families are both well seen in parts, and some of the curves of the third family can be recognised.

We may, if we choose, consider the radiating lines as the perspective view of a series of parallel lines in a plane inclined to X Y.



We then have the case of a row of vertical railings and their shadows on the ground.

In passing a line of such railings when the sun is low, the curves, which appear to travel with the observer, may often be noticed.

A. MALLOCK.

3 Victoria Street, S.W., October 16.

#### The Indian Forest Service.

I AM very glad to see Prof. Schlich's defence of the Indian Forest Service in NATURE of November 2. I have myself been very closely connected with forest administration in the Bombay Presidency from 1871 to 1894. I may say that I have seen the Department there grow up from little better than chaos into a well-organised corps of spirited and well-trained officers; and there is not one word in Prof. Schlich's letter that I cannot heartily support.

Botanists can hardly be too abundant in India; but if we want good systematic botanists there, we must call them by that name, and either train them specially to that science, or get men so trained in the market.

It is to me surprising that the Indian forest officers have done so much botanical work as they have, to say nothing of the services of several of them to zoology; and it must be remembered that their appointments are even now won at a considerable cost in toil and money, that their pay is not high, and that their duties involve at least as much hard work of body and

mind, as much hardship, and as much risk, as those of any other service in India.

Forestry is not all botany. It may, perhaps, be best defined as the "proper management of hardy life upon large areas." And the man who does that best is the best forester. We have a great many who do it well, and amongst these there will always be some to whom systematic botany is labour of love. But to insist upon any great general proficiency in one of the many subjects that a forester must study, will simply injure the general efficiency of the forest corps; and probably fail in the case of the favoured subject.

W. F. SINCLAIR.

November 3.

#### Peripatus in the Malay Peninsula.

IN a recent issue of NATURE (October 19) the interesting fact is mentioned of the discovery by the Skeat Expedition of several specimens of *Peripatus* in the Malay Peninsula. Will you allow me to remark that in 1886 I described in the Notes from the Leyden Museum a specimen of *Peripatus* from East Sumatra, found among a lot of insects collected by Mr. Hekmeyer, of our Indian Medical Service. As it was the first specimen recorded from the Oriental region, Prof. Sedgwick, in his elaborate monograph of the genus *Peripatus*, considered the Sumatra species to be somewhat doubtful. The specimens, however, found by Mr. Evans in Kalantan appear to correspond so well with our specimen, as well in the number of pairs of feet (24) as in the colour, that I think a more detailed account will prove the identity of the animals found on both sides of the Malaka Strait.

R. HORST.

Leyden Museum of Natural History, October 30.

#### A Wooden Ball of Unknown Origin.

ON the shore of the island of Hadod, latitude  $68^{\circ} 40'$  about, in Vesteraalin, north of Lofoten, there was found, probably in the autumn of 1897, a wooden ball,  $4\frac{1}{2}$  centimetres in diameter, covered by a thin layer of gum. The ball is of fine workmanship, and just able to float in the water. Circles are engraved upon four parts, and form small rhombs over the whole surface; and on two places there is engraved with Latin Majuscules the name *Melfort*. Perhaps some of your readers can say from whence this ball has come. I am writing to the man who has the ball now, to ask him to send it to me.

H. MOHN.

Det Norske Meteorologiske Institut, Kristiania, October 30.

#### Large Nicol Prisms.

IN the account of Dr. Spottiswoode's physical apparatus, lately given to the Royal Institution, there are allusions to several large Nicol prisms said to have been made by Mr. Ladd and by Messrs. Sisley and Spiller. Although it is no doubt the trade custom to mention only the names of opticians who sell pieces of apparatus, and not of any of those whom they employ to make them, I still venture to hope that in this case, where skill and labour of a very special kind were required, the name of the actual maker of the above-mentioned prisms may not be forgotten. I would therefore respectfully ask permission to give a few particulars as to size, &c., of some of the larger Nicol prisms which I have myself made from blocks of Iceland spar within the last thirty years.

(1) In 1873 Dr. Spottiswoode bought a very fine block of spar from Mr. Tulinius, of Copenhagen (who then owned and worked the spar quarry at Eskifjörður in Iceland). Out of this, which was absolutely flawless, I made a Nicol prism having a clear field of  $3\frac{1}{8}$  inches diameter, the length of each side being 12 inches.

(2) In 1874 I made a second prism from the same block of spar just mentioned, and also a third from another piece of spar bought by Dr. Spottiswoode. Both of these prisms had a clear field of  $3\frac{1}{2}$  inches, the length of the sides being  $11\frac{1}{2}$  inches. These are now at the Royal Institution.

(3) In 1875 I made a Nicol prism for Mr. Frank Crisp, of  $3\frac{1}{2}$  inches field and  $11\frac{1}{2}$  inches in length, which he used in a polariscope in conjunction with the first one mentioned above, which he had acquired from Dr. Spottiswoode. These Mr. Crisp sold, and are now in England.

(4) In 1876 I made two more large prisms for Dr. Spottiswoode, one of 3-inch and the other of  $2\frac{1}{2}$ -inch field, as spar was

even then beginning to get scarce. These are now at the Royal Institution.

In all these prisms the end faces were the natural crystal faces, only smoothed and polished; and the plane of section made an angle of  $87^{\circ} 30'$  with them, or  $21^{\circ} 30'$  with the length-axis of the prism.

In none of them was Canada balsam used as the cement (I have not used it for this purpose for thirty years past), but a special material.

C. D. AHRENS.

Swiss Cottage, King's Road, Upper Teddington,  
October 13.

### AN ENGLISH STATION FOR BOTANICAL RESEARCH IN THE TROPICS (CEYLON).

THE Royal Botanic Gardens of Ceylon, under the direction of Thwaites and Trimen, to go no further back, have long been known as one of the most important centres of scientific work in systematic and economic botany. Thanks to the British Association for the Advancement of Science, a small room next to the director's office was fitted up as a laboratory, in which have worked many botanists, chiefly English. Among those who have worked in Ceylon during the last decade may be mentioned Profs. Bower, Farmer, Goebel and Potter, and Messrs. Freeman, Keeble, Pearson, Parkin, and others. During the last two years the laboratory has been very much overcrowded, being used by the staff of the gardens as well as by visiting botanists. With the commencement this year of a new research laboratory, now being erected by the Department of Public Works, and to be completed probably before the end of the year, this difficulty will be overcome, and there will be ample room for several workers from abroad in addition to the members of the staff. This being so, it may not be amiss to give at this time an account of the facilities now available in Ceylon for research in the tropics. While the laboratory is primarily intended for botanical research, there is no intention of excluding workers in other lines so long as there is room for them, though of course money cannot be spent in providing special apparatus for their work.

The Royal Botanic Gardens form a department of the public service in Ceylon, under a director. The headquarters of the department are at Peradeniya, near Kandy, where the principal garden was established in 1821 by Moon. There are now smaller branch gardens in four other places in different climatic regions of the island. A brief account of these may be of interest.

The original Peradeniya garden lies within the municipality of Kandy, about four miles from the centre of the town. It may be reached by driving in a carriage or rickshaw, or by trains which run at intervals to a station near the garden. The roads here, as almost everywhere in the island, are excellent for cycling. The garden has an area of about 150 acres, and lies in a very beautiful situation, in a loop of the Mahaweli river, and in very mountainous country. Its elevation above sea is about 1550 feet, so that it has a much more pleasant climate than the low country. During the day the difference is but little, but the nights are very much colder than in Colombo, so that refreshing sleep can always be had; indeed, during most of the year a blanket is necessary. The mean annual temperature is  $76^{\circ}$  F., that of the hottest months (March and April) being  $79^{\circ}$ , that of the coldest (January and June)  $74-75^{\circ}$ . The highest shade temperatures ever reached are not excessive, rarely exceeding  $90^{\circ}$ , and in the present laboratory the highest in the last two years has been  $82^{\circ}$ , the lowest  $65^{\circ}$ . Work can thus be carried on with as little discomfort as in any European laboratory. The annual rainfall is about 90 inches, but owing to the great violence of tropical rain the number of rainy hours or days is very much less than in England. The number

of days with rain averages 170 per annum, and it rarely rains more than four hours on any one day. Rain in the morning is also rare. The weather of the year depends on the monsoons. In the end of May the south-west monsoon begins to blow, and there is much wind and rain, the weather gradually becoming finer through the months of June and July. August and September and the first half of October are delightful months. In October the north-east monsoon begins, and until Christmas it is very wet. In January begins the "dry season," and during the next two or three months there is less rain than at any other time of year, and the weather becomes gradually very hot, though until April the nights are cold. March and April are the only really unpleasantly warm months in the year. The best time on the whole to visit Peradeniya is from October to March, but from July onwards is very nice, the objection to travelling at this time from Europe being the heat in the Red Sea, which, however, is much less formidable than is usually supposed in these days of swift boats and ice chambers.

The garden contains a splendid collection of tropical plants, and, being arranged like an English park, with wide spaces of lawn, the specimens are easily seen and photographed. In the centre lie the buildings of the museum, library, herbarium and laboratory, close together. The museum is chiefly devoted to the economic products of Ceylon, and contains a very good and interesting collection. The herbarium consists primarily of Ceylon plants; but there is also a general tropical herbarium, and a herbarium of the plants contained in the gardens. In the same building is the library, which contains about two thousand books and papers. There is an excellent collection of books relating to economic and systematic botany, and recently a large number of works on the other branches of botany have been added; a considerable number of journals is also received regularly, including such periodicals as the *Annals of Botany*, *Botanical Gazette*, *Botanische Zeitung*, *Flora*, &c.

The laboratory lies a few yards to the north of the herbarium (a plan is given on p. 33). It consists of a one-story bungalow of brick on a stone foundation, and with cement floor and tiled roof. The length of the building runs approximately east and west, and on the north and south sides there are no verandahs. At the east end is a verandah 8 feet wide, the ends of which are built up so as to form—one a lavatory, the other a dark room for photographic work, fitted with sink, &c. At the west end is also a verandah of the same size, not built up in any way.

The building has six entrances, provided with French windows, two at each end and two on the south side. The other windows stand above the ground, and open outwards. There are doors leading from each room into all the adjacent rooms, so that free ventilation can be obtained, and at the same time any room can be completely shut up if required to prevent draughts without interference with the accessibility of the others.

The principal room, the general microscopic and morphological laboratory, lies to the north-west, and is 36 feet long and 18 feet wide. It has four working windows facing north, each with table, shelves, sink, &c., and two other windows facing into the west verandah, which can also be used as microscoping windows if required. The central part of the room will contain larger tables for microtome and other apparatus, and writing table.

To the east of this room is the smaller room devoted to physiological and pharmacological investigations. Leading out of this room is a French window, which gives access to the little eastern verandah, which may be used for cultivation experiments, &c. This room has two good working windows facing north, besides the French window. It is provided with three sinks and a